"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.G.

121-4-3/32

AUTHORS: Zusman, V.G. and Vul'fson, I.A.

TITLE: Certain Problems in Designing Systems of Digital Programme Control for Machine Tools (Nekotoryye voprosy proyektirovaniya sistem tsifrovogo programmnogo upravleniya stankami)

PERIODICAL: Stanki i Instrument, 1958, No.4, pp. 9 - 13 (USSR).

ABSTRACT: Digital programme control systems belong to one of three groups: 1) Performing setting-up motions of the working organs; 2) Controlling motions of the working organs by which the component shape is generated; 3) Controlling all machine motions in response to results computed from detecting element signals. In considering the first group, applicable in drilling, jig boring, horizontal boring and punching, the problem is to ensure the required accuracy together with the maximum rapidity of motions, both for setting-up and cutting. A typical control cycle is considered and a simple analysis is applied to determine optimum velocities and the required resolution of the digital control step. The second group is stated to be at the beginning of its technical development with many unsolved problems. A general discussion is devoted to the topics of: a) reduction of the required volume of information. In the general case, mathematical theory can be used to evaluate the volume of information required in relation to the permitted error

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121-4-3/32

Certain Problems in Designing Systems of Digital Programme Control for Machine Tools

(Kolmogorov, A.N. - "On Certain Asymptotic Properties of Wholly Bounded Metric Spaces", 1956, No.3, Doklady AN SSSR). In practice, the provalence of straight lines and circles greatly simplifies the problem; b) appropriate dimensioning of drawings. Dimensioning convenient for digital control is illustrated by an example; c) the substitution of special programme control devices and keyboard machines for general electronic computing machines. Fig. 7 shows the configuration diagram of a device designed by ENIMS to translate digital information into impulse form using linear interpolation. The machine transfers the information from a perforated paper strip into a five-way magnetic impulse tape; d) the development of control devices directly associated with the machine tool in order to formulate the digital information by a kind of copying procedure. The third group of programme control system is not discussed. There are 7 figures and 4 Russian references.

AVAILABLE: Library of Congress

Card 2/2 1. Machine tools (Automatic) 2. Machine tools-Control systems

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.G.

Requirements of electric equipment used in machine tools. (MIRA 11:11)
Stan.i instr. 29 no.11:6-8 N '58.
(Machine tools--Electric driving) (Electric controllers)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.G.; RATMIROV, V.A.

Digital control systems with step-by-step engines. Stan.i instr. 29 no.12: 4-9 D '58. (MIRA 11:12)
(Machine tools--Numberical control)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.G.

25(1) PHASE I BOOK EXPLOITATION SOV/2383

Akademiya nauk SSSR. Komissiya po tekhnologii mashinostroyeniya

Avtomatizatsiya mashinostroitel'nykh protsessov. t. II: Privod i upravleniye rabochimi mashinami (Automation of Machine-building Processes. Vol.2: Drives and Control Systems for Process Machinery) Moscow, Izd-vo AN SSSR, 1959. 370 p. Errata slip inserted. 5,000 copies printed.

Ed.: V.I. Dikushin, Academician; Ed. of Publishing House: D.M. Ioffe; Tech. Ed.: I.F. Kuz'min.

PURPOSE: This book is intended for engineers dealing with automation of various machine-building processes.

COVERAGE: This is the second volume of transactions of the second Conference on Overall Mechanization and Automation of Manufacturing Processes held September 25-29, 1956. The present volume consists of three parts, the first dealing with automation of engineering measuring methods. The subjects discussed include automatic control of dimensions of machined parts, inspection methods for automatic production lines, in-process inspection devices, application of electronics in automating linear measuring processes, and machines for automatic inspection of bearing races. The second part deals with automatic drives and control systems for process machinery, including application of digital computers in the control of metal-cutting machine tools, reliability of relay systems, application of gas-tube frequency converters in the control of induction motor speeds, magnetic amplifiers and their use in automatic systems, hydraulic drives, and ultrasonic vibrators. Part three deals with mechanisms of automatic machines and automatic production lines. The subjects discussed include linkage, indexing, and Geneva-wheel-type mechanisms, friction drives, automatic loading devices, diaphragm-type pneumatic drives, various auxiliary devices for automatic production lines, and methods of design and accuracy of cams. No personalities are mentioned. There are no references.

Gorodetskiy, I. Ye. [Deceased]. Automatic Control of Dimensions in Machine Building 5

Al'tshuller, A.N. Determining Optimum Conditions for Controlling the Mean Diameter of Machined Parts 9

Kopanevich, N. Ye. [Lenin prizewinner]. Inspection Methods for Automatic Production Lines 29

Dvoretskiy, Ye. R. Standard Devices for Active Control 39

Vikhman, V.S. Application of Electronics in Automating Linear Measuring Methods 45

Klusov, I.A. Metrological and Statistical Checking of Some Automatic Inspection and Sorting Systems 53

Snitov, G.A., Ye. M. Dvoskin. Experience Gained in Developing Machines for Automatic Inspection of Bearing Races 62

Mayorov, P.V. Digital Computers in Automatic Control of Processes 75

Khetagurov, Ya. A. Some Problems Concerning Digital Control of Metal-cutting Machine Tools 88

Zusman, V.G., and I.A. Vul'fson. Designing Digital Program Control Systems for Machine Tools 98

Sotskov, B.S. Problems Concerning the Reliability of Relay Systems 107

Labuntsov V.A. Application of Gas Tube Frequency Converters in the Control of Induction Motor Speeds by the Frequency Method 117

Nardis, V.A. Controlled Electric Drive for Metal-cutting

Levitskiy, N.I. Development of the Theory of Mechanisms of Automatic Machines 203

Card 5/7

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

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A004/A001

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AUTHORS: Zusman, V.G., Vul'fson, I.A.

TITLE: The Selection of a Coded Decimal System

PERIODICAL: Stanki i Instrument, 1960, No. 9, pp. 3-6

TEXT: In their article the authors refer to some special problems of coding which are characteristic for program-controlled machine tools. They enumerate a number of conditions on which the most expedient methods of program coding depend and which are mainly determined by operational requirements. They point out that numerically controlled machine tools of Soviet and foreign manufacture use the following coding systems: the decimal, the "5 x 2", "2 from 5", coded-decimal and binary systems. Their further investigations deal only with the selection of a coded decimal system, the application of which extends more and more, since it gives the most satisfactory results concerning operational requirements. The quantity of numerical combinations in the code is expressed by the formula $C_9^4 = \frac{9!}{(9-4)!\,4!}$, while only 16 such combinations, which are presented, would meet the required conditions and only the following 4 of the mentioned combinations

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The Selection of a Coded Decimal System

would be suitable for machine tools with pulse circuits of transmission ratio modification: 5211, 4311, 4221, and 3321. It is pointed out that for the selection of the particular values of numbers in the code the following points have to be considered: 1) the least possible value of K (the ratio of the nominal to minimum value of the reciprocal pulse duty factor of the pulse series coming out of the linear interpolator) which ensures the greatest possible coefficient of utilization of machine tool and program carrier:

$$K = \frac{f_{max}}{f_{nom}} ; \quad f_{max} = \frac{1}{T_{min}} ; \quad f_{nom} = \frac{1}{T_{nom}}.$$

2) The most reliable program input which is taken to be proportional to the average number of switch-on contacts necessary for the transmission of one decimal digit. 3) Simplicity of decade formation in the control circuits. 4) Simplicity of decade formation in the decoder. The authors present pulse succession graphs for a number of decades, including the most important cases, give a detailed description of the simplicity of decade formation in the control circuits and in the decoder and cite a universal ferrotransistor decade system which has been used by the

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A004/A001

The Selection of a Coded Decimal System

ENIMS lately. The results of comparing the codes by various criteria show that the code 2421P (2421R) is the optimum one. In this case the value of K is the least, while the other factors mentioned have the optimum values. There are 11 figures and 4 tables.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

S/121/61/000/003/001/006
D040/D112

AUTHORS: Zusman, V. G., and Rozinov, A. G.

TITLE: Electronic pulse devices in numerically controlled machine tools

PERIODICAL: Stanki i instrument, 32 no.3, 1961, 1-5

TEXT: A description is given of elements and component units of numerical machine-tool-control systems, developed during recent years at the electrotechnical department of ENIMS and built around electron tubes, transistors and ferrites. They have been used for control systems of 6Н13ПР (6N13PR) and 6М42П (6M42P) milling machines, 1К62П (1K62P) and МА-12 (MA-12) lathes, an ЛКП-01-Ф (LKP-01-F) code converter for recording a program on magnetic tape and other devices. The design and operation of the devices are described in detail and illustrated with diagrams. The units have passed prolonged laboratory tests. The following units are described: (1) a one-stage tube pulse amplifier, the simplest elementary unit around which all the other units can be built. It is also widely used as an independent amplifier for pulse voltage, current, or power, and can either

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D040/D113

1.7000

AUTHORS: Zusman, V. G., and Rozinov, A. G.

TITLE: Electronic pulse ferrotransistor devices in numerically-controlled machine tools

PERIODICAL: Stanki i instrument, 32 no. 4, 1961, 3-9

TEXT: This article deals with investigations conducted at ENIMS on the possibility of using ferrite cores in numerically-controlled machine tools. The operating principle of ferrite elements and various arrangements are described, and recommendations are given as to the selection of basic parameters such as numbers of winding turns, load impedance, etc. A ferrotransistor cell is shown in a photograph, and its circuit which is used for different control system combinations (Fig. 3), is described in detail. Its ferrite functions as a memory unit, and the triodeas a pulse amplifier. The output pulse cannot be shorter than 1.5-2.0 μsec and may be prolonged to 3.5-4.5 μsec, by using more turns in the basic winding. The following numerical control system units with such ferrotransistors are described and illustrated in circuit diagrams: a binary frequency divider; a dual-input coincidence circuit; a rectifier; collector circuits with two and with one

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Electronic pulse ferrotransistor...

ferrotransistor; a permissive circuit; a dynamic valve as a memory cell; a delay circuit; a decade code divider; a synchronizing circuit for matching signals received from pickups or from the program with timing pulses. Two circuit diagrams illustrate two types of ferrotransistor cells developed by ENIMS, which are now serially produced in the Soviet industry. Ferrotransistorized circuits have been preliminarily tested and stated to be considerably more dependable than the existing tube and semiconductor circuits. No special selection is needed to match transistors with ferrites, and this facilitates the adjustments. ENIMS has by now completed some ferrotransistorized arrangements and used them for an ЛКП-ОИФ (LKP-OIF) code converter and a 6М42ПМ (6M42PM) machine tool. Some previously developed numerical control systems will be replaced by them. There are 17 figures and 5 Soviet references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

AYZENSHTADT, L.A.; PEN'KOV, P.M.; GLADKOV, B.A.; LIKHT, L.O.; KRIMMER, T.Ye.; KASHEPAV, M.Ya., kand. tekhn. nauk; MERPERT, M.P., kand. tekhn. nauk; KOPERBAKH, B.L.; CHERNIKOV, S.S., kand. tekhn.nauk; BELOV, V.S.; ZHURIN, B.F.; MONAKHOV, G.A., kand.tekhn.nauk; MOROZOV, I.I.; MUSHTAYEV, A.F.; OGNEV, N.N.; PALEY, M.B., kand. tekhn. nauk; FURMAN, D.B.; LIVSHITS, A.L., kand.tekhn.nauk;MECHETNER, B.Kh.;SOSENKO,A.B;AVDULOV, A.N.; LEVIN, A.A., kand.tekhn. nauk; YAKOBSON, M.O., doktor tekhn.nauk; MAYOROVA, E.A., kand.tekhn.nauk; MOROZOVA, Ye.M.; ZUSMAN, V.G., kand.tekhn. nauk; NAYDIS, V.A., kand.tekhn.nauk; VLADZIYEVSKIY, A.P., prof., doktor tekhn. nauk, red.; BELOGUR-YASNOVSKAYA, R.I., red.; CHIGAREVA, E.I., red.; ASVAL'DOV, M.Ya., red.; KOGAN, F.L., tekhn. red.

[Machine-tool industry in capitalist countries] Stankostroenie v kapitalisticheskikh stranakh. Pod red. i s predisl. A.P.Vladzievskogo. Moskva, 1962. 822 p. (MIRA 15:7)

1. Moscow. TSentral'nyy institut nauchno-tekhnicheskoy informatsii mashinostroyeniya. 2. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov (for Vladziyevskiy, Belogur-Yasnovskaya, Chigareva, Asval'dov, Kogan).

(Machine-tool industry)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.G., kand.tekhn.nauk; RATMIROV, V.A., kand.tekhn.nauk

Stepping motors in program control systems. Elektrichestvo no.10:37-47 O '62. (MIRA 15:12)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov.
(Electric motors) (Automatic control)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

VUL'FSON, I.A.; ZUSMAN, V.G.; RATHIROV, V.A.

Automatic control of cutting conditions on program controlled milling machines. Stan. i instr. 36 no.9:1-4 S '65. (MIRA 18:10)

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L 05087-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)
ACC NR: AP6013254 SOURCE CODE: UR/0413/66/000/008/0042/0043

AUTHORS: Zusman, V. G.; Tikhomirov, E. L.; Reshetilov, I. D.; Rozanov, L. V.

ORG: none

TITLE: A device for automatic smooth braking and accelerating according to a linear law for a system of programmed control. [Class 21, No. 180675 /announced by Experimental Scientific Research Institute of Metal Cutting Machine Tools (Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov)_/

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 42-43

TOPIC TAGS: linear automatic control system, computer programming, metal cutting machine tool

ABSTRACT: This Author Certificate presents a device for automatic smooth braking and accelerating, based on a linear law, for a system of programmed control. The device includes a linear voltage shaper, a converter from a numerical code to a unitary code, counters, commutators, and a generator with a variable cyclic

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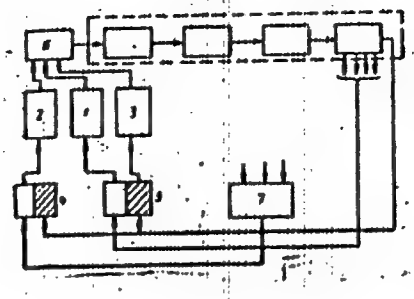
ACC NR: AP6013254

Fig. 1. 1-3 - linear voltage shapers;
4 and 5 - commutators;
6 - cyclic generator;
7 - comparison device



frequency (see Fig. 1). The design provides braking down to a single minimum speed and eliminates bursts of speed when changing from one card of the program to another card. Two auxiliary linear voltage shapers are installed in the device. The commutators are connected to the inputs of the shapers. The outputs of the shapers are connected to the cylcic generator. The comparison device is connected to the inputs of the commutators. A voltage with a frequency corresponding to the minimum speed of motion of the object being regulated is fed to the input of the comparison device. Orig. art. has: 1 figure.
SUB CODE: 09, 13/ SUBM DATE: 06Jul64

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

KHARIZOMENOV, I.V., doktor tekhn. nauk, prof.; ZISMAN, V.G., kand. tekhn. nauk, retsenzent; ROZINOV, A.G., inzh., retsenzent; MIKHNA, G.K., inzh., red.

[Electrical equipment and automatic control of machine tools] Elektrooborudovanie i elektroavtomatika metallorezhushchikh stankov. Izd.3., perer. Moskva, Mashinostroenie, 1964. 327 p. (MIRA 18:2)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

1. ZUSMAN, V. M.

2. USSR (600)

4. Beets and Beet Sugar

7. Control of beet shortages. Sakh. prom. 26, no. 12, 1952.

9. Monthly List of Russian Accessions, Library of Congress, February 1953. Unclassified.

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.M.

It is time now to reduce the number of railroad beet receiving stations. Sakh. prom. 35 no. 5:38 My '61. (MIRA 14:5)

1. Antoninskiy sakharnyy zavod.
(Sugar beets)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.M.

Eliminate causes of increased cost of sugar. Sakh.prom. 27 no.4:36-38 Ap '53. (MLRA 6:6)

1. Antoninskiy sakharnyy zavod. (Sugar industry)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMAN, V.S., inzh.

Development of refrigeration in the Moldavian S.S.R. Khol. tekh. 40 no.2:1-3 Mr-Ap '63. (MIRA 16:4)

1. Gosudarstvennyy komitet Soveta Ministrov Moldavskoy SSR po koordinatsii nauchno-issledovatel'skikh rabot.
(Moldavia—Refrigeration and refrigerating machinery)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

VISHNEVSKIY, V.M., kand.istor.nauk; GAYDASHENKO, K.P.; DUDOROV, V.M.; KLEYMAN, T.Ye.; KRUSHANOV, A.I., kand.istor.nauk; KUCHERYAVENKO, V.T.; LEVITSKIY, V.L.; OKSTUZ'YAN, D.V.; POLYAKOV, V.V.; SAMOKHVALOV, V.A.; SVIN'IN, V.V.; STEPANOVA, L.F.; SUSHKOV, B.A.; FISHER, Ye.L.; BELYKH, D.P., otv.red.; AVERKIN, B.Z., red.; KUSMAN, Ye.I., red.; MAYOROV, V.M., red.; KIREYEVA, T.R., vedushchiy red.; BUTOVA, L.A., tekhn.red.

Vladivostok, 1860-1960. Vladivostok, Primorskoe knizhnoe izd-vo, 1960. 271 p. (MIRA 13:11)
(Vladivostok)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

DERYAGIN,B.V.; ZAKHAVAYEVA,N.N.; ZUSMAN,Ye.Ye.; TALAYEV,M.V.; FILIPPOV-SKIY,V.V.

Air permeability method for the determination of the specific surface of disperse systems. Zhur.fiz.khim.29 no.5:860-866 My'55. (MLRA 8:12)

1. Akademiya nauk SSSR., Institut fizicheskoy khimii
(Dispersiometry)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

FRIDMAN, I.D., kand.tekhn.nauk; MAMEDOV, G.M., inzh.; SHCHUTKINA, Ye.D., inzh.; ZUSMAN, Ye.Ye., inzh.

Using pyrite cinders as a raw material for the production of weighted material. Trudy AzNII DN no.5:162-179 '57. (MIRA 12:4)

(Oil well drilling)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, G.G.

Continuous determination of the thickness of nickel-phosphorus coatings. Zav.lab. 26 no.7:838-839 '60. (MIRA 13:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Thickness measurement)
(Nickel-phosphorus alloys)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, D.M.

Estimating the contact surface between air and water in spray chambers. Vod. i san. tekh. no.7:2-7 Jl '61. (MIRA 14:7)
(Air conditioning)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

VISHENKOV, S.A., kand. tekhn. nauk; KASPAROVA, Ye.V., inzh.; Prinimali uchastiye: RYABCHENKOV, A.V., doktor khim. nauk, prof.; VELEMITSINA, V.I., inzh.; ZUSMANOVICH, G.G., kand. tekhn. nauk; TUTOV, I.Ye., kand. tekhn. nauk, retsenzent; KUBAREV, V.I., inzh., red.; TAIROVA, A.L., red. izd-va; MAKAROVA, L.A., tekhn. red.; MEL'NICHENKO, F.P., tekhn. red.

[Increasing the reliability and durability of machine parts by chemically nickel coating] Povyshenie nadezhnosti i dolgovechnosti detalei mashin khimicheskim nikelirovaniem. Moskva, Mashgiz, 1963. 205 p. (MIRA 16:6)
(Protective coatings) (Nickel)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, G. G., Cand Tech Sci -- Study of the method of restoring piston couples of tractor engines by means of chemical nickel plating." Mos 1961. (Min of Higher and Sec Spec Ed RSFSR. Mos Forest Eng Inst) (KL, 8-61, 243)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

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E073/E335

18 8200 1045 2808

AUTHORS: Lozinskiy, M.G., Doctor of technical Sciences, Zusmanovich, G.G. and Mirotvorskiy, V.S., Engineers

TITLE: Dependence of the Microhardness of Wear-resistance Coatings on Temperature

PERIODICAL: Metallovedeniyo i termicheskaya obrabotka metallov, 1961, No. 8, pp. 37 - 39

TEXT: For evaluating the performance of the wear-resistant coatings, it is useful to determine their microhardness at elevated temperatures. A. Brenner (Ref. 1 - Journal of Research, Nat. Bureau Standards, Vol. 46, No. 2, 1951) published results on microhardness tests at 600 °C in an inert gas carried out on chromium-plating using loads of 30 - 200 g. Apparatus was built in 1958 at the Institute of the authors which enabled determining the microhardness of metals and alloys at temperatures up to 1 300 °C in vacuum at loads of 5 - 100 g and tensile tests with stresses of 0 - 60 kg/mm^2. The authors studied with this equipment the influence of temperature on the microhardness of nickel-phosphor and of

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E073/E335

Dependence of the ....

chromium coatings using a load of 100 g. The coatings were produced on specimens of commercial iron HV 100 kg/mm^2. The nickel-phosphor coatings were deposted from a solution consisting of 21 g/l. of nickel chloride, 24 g/l. sodium hyperphosphite and 10 g/l. sodium acetate. The coatings contained about 9% phosphor and were 40 - 50 μ thick. The chromium coatings (35-40 μ thick) were deposited from a standard electrolyte at 55 °C, using a current density of 35 A/dm^2. The thickness of the coatings was more than 2.5 times the depth of the indentation at the maximum test temperature. The microhardness of the nickel-phosphor coatings was tested at elevated temperatures directly after the coatings were produced and after heating to 400 °C and holding them at that temperature for 1 hour, followed by cooling in air. Such a heat-treatment ensures better adhesion between the coating and the surface of the component and increases the hardness. The chromium coatings were not heated. The hot microhardness of specimens from

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Dependence of the ....

the steel XBГ (KhVG) was tested after quenching and low-temperature tempering (HRC 63-64). The obtained results enable comparing the temperature dependence of the hardness of this steel with that of the coatings. 15 indentations were made at each test temperature with a sapphire indenter (pyramid with an angle of 136°). The results, H_μ, kg/mm^2 versus temperature, °C, are plotted in Fig. 1 (Curve 1 - nickel-phosphor coatings without heat-treatment; Curve 2 - nickel-phosphor coatings after heat-treatment at 400 °C for 1 hour; Curve 3 - chromium-plating; 4 - steel KhVG, HRC 63). The results show that nickel-phosphor coatings have the highest hardness in the temperature range 150 - 350 °C and should be used for improving the resistance-to-wear of components operating at these temperatures. It is advisable to use chromium-plated or hardened steels for components operating at temperatures above 350 °C.

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E073/E335

Dependence of the ....

There are 1 figure, 1 table and 6 references: 4 Soviet and 2 non-Soviet. The two English-language references quoted are: Ref. 1 (in text) and Ref. 3 - M. Hansen, Constitution of Binary Alloys, New York, 1958,

ASSOCIATIONS: Institut mashinovedeniye AN SSSR (Institute of Machine Science of the AS USSR)
Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva (All-Union Scientific Research Institute for Mechanisation of Agriculture)

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E073/E535

1.1800 1045 2808 2208

AUTHOR: Zusmanovich, G. G., Engineer

TITLE: Influence of the heat treatment on the strength of the bond between nickel-phosphor coatings and quenched steel ХВГ (KhVG)

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No.8, pp.40-42

TEXT: According to I. L. Chinn (Ref.4: Materials and Methods, No.5, 1955) the high bond strength appears to be the result of the combined effect of chemical and mechanical bonds. K.M.Gorbunova and A.A.Nikiforova explain the increase in the mechanical bond of nickel-phosphor coatings with the base metal by the possibility of formation of a deposit in the microcavities of the surface, not observed in electrolytic precipitates due to the limited dispersion ability of the electrolysis (Ref.1: Physical and chemical bases of chemical-nickel plating, Izd-vo AN SSSR, 1960). According to published data, the strength of the bond between nickel-phosphor coatings and the base metal is 20 to 40 kg/mm^2. However, the bond strength also depends on the acidity of the solution and, according

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to W. Wesley (Ref.6: Plating, No.7, 1950), the bond of coatings from acidic solutions is approximately twice as strong as from alkaline solutions. Since the bond strength cannot be easily determined directly by tensile tests, it is convenient to substitute these by simpler shear tests. According to the energy theory of strength, the relation between the normal and the tangential stresses can be expressed by:

$$\tau = 0.6\,\sigma$$

In shear tests on circular specimens

$$\sigma = \frac{P}{0.6\,\pi dh}$$

where P - load, d - specimen diameter, h - height of the belt coated. Since the bond strength depends to a considerable extent on the nature and state of the base material, the investigations were made on steel specimens with a certain hardness and a certain surface quality. As specimens, precision pairs were used - cylinders and bushings of 8.5 mm diameter and 15 mm, with a hardness HRC 63, a surface quality of ▽ 11 б according to the Soviet specification ГОСТ (GOST) 2789-51. The ends of the

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cylinders were isolated by means of chlorovinyl tubes so as to expose in the middle a non-isolated strip 1 to 1.2 mm high. Following that, the specimens were chemically nickel-plated and on the non-isolated belt a nickel phosphor coating was deposited in the form of a ring 0.05 mm thick. The nickel plating was in an acidic solution, pH = 5, of the following composition: nickelous chloride 30 g/l, sodium hypophosphite 10 g/l and sodium acetate 10 g/l. The P content in the coating was about 9%. After nickel plating, the coated specimens were soaked at 300, 400, 500, 600 and 700°C for 60 min and, in addition, at 400°C for 30 and 120 min. Some specimens were not heat treated. Following that, the belts with nickel-phosphor coatings were machined to ensure that the front surface of the ring-shaped belt is perpendicular to the generating line of the specimen and that a uniform height of the ring-shaped belts is obtained (0.5 mm for heat treated specimens and 1 mm for specimens non-heat treated). The machined specimens fitted into the bushings and, due to the precision machining, accurate centering was achieved excluding the possibility of wedging. Thus, prepared specimens were subjected to compression

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tests which were applied with a uniform speed equalling 50 mm/min. At the instant of appearance of a crack in the nickel-phosphor coating and during shearing off of the ring-shaped belt, the loads were measured with an accuracy of ±0.5 kg. It was found that coatings which have not been heat treated are brittle and do not bond intensively with the base metal; compression with a force of 50 to 60 kg causes cracking and peeling off of the coating. Heat treatment improves considerably the ductility and strength of the bond. The increase in ductility is due to structural transformations and diffusion processes in the transition zone. Fig.2 shows the influence of the heat treatment temperature on the ductility and the bond strength of nickel-phosphor coatings with steel KhVG (heating duration 60 min). Up to 500°C the force at which cracks appear (P_{mp}) increases. If the heating temperature is increased further, the plasticity of the coatings increases to such an extent that under the applied test conditions no cracks formed. With increasing heat treatment temperature, the loads ($P_{c\partial B}$) also increase at which the ring-shaped belt coating shears

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Influence of the heat treatment ...

off. The bond strength reaches a maximum at about 500°C amounting to 32 kg/mm^2. The optimum heat treatment from the point of view of ensuring maximum bond strength is heating for 1 hour at 450 to 500°C. However, from the point of view of obtaining a higher hardness, it is preferable to apply a heat treatment temperature of 400 to 450°C. There are 2 figures and 7 references: 4 Soviet and 2 non-Soviet. The other English-language reference reads as follows: G. Gutzeit and E. Mapp, Corrosion Technology, V.3, No.10, 1956.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva
(All Union Scientific Research Institute for the Mechanization of Agriculture)

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ZUSMANOVICH, G.G.

Reconditioning piston pairs by chemical nickel plating. Sbor. rab. GOSNITI no.16:54-67 ['61]. (MIRA 16:12)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, G.G., inzh.

Application of chemical nickel-plating in repairing the fuel pump piston pairs. Mekh. i elek. sots. sel'khoz. 19 no.6:38-41 '61. (MIRA 14:12)

1. Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy tekhnologicheskiy institut remonta i ekspluatatsii mashinno-traktornogo parka.
(Fuel pumps--Maintenance and repair)
(Nickel plating)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ARTEM'YEV, Yu.N., kand. tekhn. nauk; ASTVATSATUROV, G.G., inzh.; BARABANOV, V.Ye., inzh.; BARYKOV, G.A., inzh.; BISNOVATYY, S.I., inzh.; GALAYEVA, L.M., inzh.; GAL'PERIN, A.S., kand. tekhn. nauk; GAL'CHENKO, I.I., inzh.; GONCHAR, I.S., kand. tekhn. nauk; DEGTYAREV, I.L., kand. tekhn. nauk; DYADYUSHKO, V.P., inzh.; YERMAKOV, I.N., inzh.; ZHOTKEVICH, T.S., inzh.; ZUSMANOVICH, G.G., inzh.; KAZAKOV, V.K., inzh.; KOZLOV, A.M., inzh.; KOROLEV, N.A., inzh.; KRIVENKO, P.M., kand. tekhn. nauk; LAPITSKIY, M.A., inzh.; LEBEDEV, K.S., inzh.; LIBERMAN, A.R., inzh.; LIVSHITS, L.G., kand. tekhn. nauk; LOSEV, V.N., inzh.; LUKANOV, M.A., inzh.; LYUBCHENKO, A.M., inzh.; MAMEDOV, A.M., kand. tekhn. nauk; MATVEYEV, V.A., inzh.; ORANSKIY, N.N., inzh.; POLYACHENKO, A.V., kand. tekhn.nauk; POPOV, V.P., kand. tekhn. nauk; PUSTOVALOV, I.I., inzh.; PYTCHENKO, P.I., inzh.; PYATETSKIY, B.G., inzh.; RABOCHIY, L.G., kand. tekhn. nauk; ROL'BIN, Ye.M., inzh.; SELIVANOV, A.I., doktor tekhn. nauk; SEMENOV, V.M., inzh.; SKOROKHOD, I.I., inzh.; SLABODCHIKOV, V.I., inzh.; STORCHAK, I.M., inzh.; STRADYNOV, F.Ya., kand. tekhn. nauk; SUKHINA, N.V., inzh.; TIMOFEYEV, N.D., inzh.; FEDOSOV, I.M., kand. tekhn. nauk; FILATOV, A.G., inzh.; KHODOV, L.P., inzh.; KHROMETSKIY, P.A., inzh.; TSVETKOV, V.S., inzh.; TSEYTLIN, B.Ye., inzh.; SHARAGIN, A.M., inzh.; CHISTYAKOV, V.D., inzh.; BUD'KO, V.A., red.; PESTRYAKOV, A.I., red.; GURZVICH, M.M., tekhn. red.

(Continued on next card)

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ARTEM'YEV, Yu.N.— (continued) Card 2.

[Manual on the repair of machinery and tractors] Spravochnik po remontu mashinno-traktornogo parka. Pod red. A.I.Solivanova. Moskva, Sel'khozizdat. Vols.1-2. 1962. (MIRA 15:6)
(Agricultural machinery—Maintenance and repair)
(Tractors—Maintenance and repair)

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E073/E535

18.7400

AUTHOR: Zusmanovich, G. G., Engineer

TITLE: Influence of Heat Treatment on the Hardness of Nickel-Phosphor Coatings

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1960, No 4, pp 48-50 + 1 plate (USSR)

ABSTRACT: The investigations were aimed at determining the optimum regime of heat treatment of Ni-P coatings. As specimens 8.5 mm KhVG steel plungers were used at the surface of which a 15 to 16 micron thick layer was deposited by nickel coating at 90 to 94°C in a solution containing 30 g/litre nickelous chloride, 10 g/litre sodium hypophosphate and 10 g/litre sodium acetate. Prior to heat treatment the microhardness of the coatings was 420 to 466 kg/mm². The influence of heat treatment was studied at 150, 200, 250, 300, 350, 400, 500, 600, 700, 750 and 800°C with various soaking times. As a result of the heating in an electric furnace, followed by cooling in air, a thin oxide film formed for heating temperatures above 300°C. The thickness, density and

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Influence of Heat Treatment on the Hardness of Nickel-Phosphor Coatings

colour of the film varied depending on the temperature and the heating duration. The investigations have shown that at 400°C the film was denser than at 600°C; with increasing temperature the density of the oxide film decreased and at 750°C the oxide film was very soft and loose. The graph, Fig 1, shows curves of the changes in the microhardness of the coatings as a function of the heat treatment regimes. Changes in the microhardness of the coating are attributed to changes in the structure of the Ni-P alloy. The layer structure which exists prior to heat treatment ceases to exist after heat treatment (see Fig 2, plate). The X-ray patterns of the material after heat treatment are also appreciably different from those prior to heat treatment (Fig 3, plate). Visual analysis of the X-ray patterns (carried out by D. K. Khakimova, Institute of Metallurgy, Ac.Sc., USSR) showed that changes in the soaking temperature between

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Influence of Heat Treatment on the Hardness of Nickel-Phosphor Coatings

400 and 750°C do not result in phase transformations of the Ni-P coating, i.e. the formed phase is sufficiently stable. The changes in hardness are due to the formation of a phosphide, the composition of which has to be further investigated; the slight increase in the microhardness for soaking temperatures between 150 and 200°C is attributed to the fact that at that temperature this phosphide still forms but incompletely. The changes in the properties of the coatings caused by changes in the heat treatment in the higher temperature range is explained by phosphide coagulations and this is confirmed by the changes in the microstructure (Fig 4); after holding at 750°C for 5 mins a relatively finely dispersed structure can be observed. In Fig 5 the dependence is graphed of the microhardness on the temperature for heating durations of 15, 30 and 60 mins respectively. It was found that the optimum heat

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Influence of Heat Treatment on the Hardness of Nickel-Phosphor Coatings

treatment regime from the point of view of hardness and bond strength is heating to 400-450°C for a duration of 40 to 45 mins.
There are 5 figures and 5 references, 2 of which are Soviet and 3 English.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva
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ZUSMANOVICH, G.G., inzh.

Effect of heat treatment on the strength of bonding nickel-phosphorous coatings to hardened KhVG steel. Metalloved. i term. obr. met. no.8:40-42 Ag '61. (MIRA 14:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Case hardening) (Steel alloys--Heat treatment)

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14(1) SOV/66-59-3-11/31

AUTHOR: Zusmanovich, L., Engineer

TITLE: On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

PERIODICAL: Kholodil'naya tekhnika, 1959, Nr 3, pp 44 - 50 (USSR)

ABSTRACT: The author comments on the existing methods of making spray chamber calculations, which employ so-called "coefficients of performance", based on a comparison between the actual process taking place in the spray chamber and the ideal, or conditional process, which occurs under the same conditions, but terminates in a complete saturation of the air with moisture. The analysis of the coefficients of performance has not only revealed certain faults in the method, but has also shown that they do not reflect the essence of the phenomena of jointly occurring processes of heat and mass exchange. The article refers to works by Ye.Ye. Karpis, Ye.S. Kurylev, I.N. Kuranov, V.V. Mukhin and others, who have observed, in the course of experiments certain deviations of the actual cooling and drying process of the air from that predicted theoretically. The value of these coefficients not only fails to permit the evaluation of the joint flow direction of heat and mass, upon contact between air and

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On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

water, but also the correlation of these flows in the joint processes. The article also mentions A.A. Gogolin, who was the first to offer a well founded solution to the problem of finding a second parameter of the air at the end of the process, introducing the concept of a coefficient of deviation, which represents the deviation of the actual process from the conditional process. The article describes the laboratory investigations carried out in 1956-1957 by the author, pertaining to the heat and mass exchange processes taking place in air, while it is cooling and drying in spray chambers. The analysis of the experimental findings made it possible to determine the initial parameters of the interacting media on the final result of the joint processes. It was ascertained that basically three factors affect the summary flows of heat and moisture, viz: 1 - initial driving force of the mass exchange; 2 - initial state of air; 3 - intensity of spraying. For the calculation of the effect of the initial potentials of the heat and mass exchange on the final results and on the course of the joint processes, which take place during simultaneous cooling and drying of air, the author has proposed parameter M, equal to the ratio of the amount of heat which water can absorb in heating up to dew point to the amount of heat which a certain initial mixture of

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On the Calculation of the Cooling and Drying Processes of Air in Spray Chambers

steam and air has to liberate while it cools off to the same dew point temperature. The author gives several formulae and equations making possible the solution of a number of problems, such as the final parameters of air and water at the end of the process of cooling and drying air in a twin-row spray chamber.
There are: 4 graphs, 1 table and 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut sanitarnoy tekhniki Akademii stroitel'stva i arkhitektury SSSR (Scientific Research Institute of Sanitation Engineering of the Academy of Construction and Architecture, USSR)

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S/066/60/000/006/007/009
A003/A029

AUTHOR: Zusmanovich, L., Engineer

TITLE: General Method for Evaluating Heat and Moisture Exchange in Air Washers in Decreasing Heat Contents of the Air

PERIODICAL: Kholodil'naya tekhnika, 1960, No. 6, pp. 35-41

TEXT: The motive force of mass-exchange processes in air washers Δp is determined by the formula $\Delta p = p_{pa} - p_w = a(t_p - t_w)$ atm (1), where a is the coefficient of proportionality, atm/degree; $(t_p - t_w)$ is the temperature analogue of the motive force of the mass-exchange. [Abstracter's note: Subscripts $_{pa}$ (partial) and $_w$ (water) are translations from the Russian $_{\text{п}}$ (parsial'nyy) and $_{\text{в}}$ (voda)]. Similar formulae are derived for the interaction of air with water showing that the contact surface is proportional to the quantity of the atomized water (2); for the coefficient 1 characterizing the contact surface (3); for the motive force of the heat-exchange processes taking place simultaneously with the heat- and moisture-exchange (4), (5). Finally, an equation for the relative changes of the heat contents $\frac{\Delta I}{\Delta I_p}$ is obtained (7). For the cooling processes with lowering of the heat

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A003/A029

General Method for Evaluating Heat and Moisture Exchange in Air Washers in Decreasing Heat Contents of the Air

content of the air in air washers with constant design characteristics equation (7) takes the following form:

$$\Delta\bar{T} = \Phi\left[(1+M_1);\ \frac{H_w}{w_f}\right] (11), \text{ where } M_1 = \frac{t_a - t_w}{t_{dr} - t_d};$$

t_d = the dew point of the air; t_w is the temperature of the surface of the water; t_{dr} is the temperature of the air on a dry thermometer; $\frac{H_w}{w_f}$ is the sprinkling coefficient, characterizing the surface of the contact per unit of air to be treated. The relative change of the temperature ΔT_0 is found by the equation: $\Delta T_0 = \psi\left[(1+M_1);\ \frac{H_w}{w_f}\right] (13)$. Further equations are developed for the boundary conditions between drying and humidifying of unsaturated air, for complete and apparent heat exchange and for the humidity control in deep coal mines. The data obtained allow for rating air washers of various cross sections and designs for dehumidification, dry cooling and humidification of air under various initial states. There are 4 figures and 7 Soviet references.

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A003/A029

General Method for Evaluating Heat and Moisture Exchange in Air Washers in Decreasing Heat Contents of the Air

ASSOCIATION: Nauchno-issledovatel'skiy institut sanitarnoy tekhniki Akademii stroitel'stva i arkhitektury SSSR (Scientific Research Institute of Sanitary Engineering of the USSR Academy of Construction and Architecture)

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KARPIS, Ye., kandudat tekhnicheskikh nauk; ZUSHANOVICH, L., inzhener.

New individual conditioners. Khol.tekh.33 no.3:17-25 Jl-S '56.
(Air conditioning--Equipment and supplies) (MLRA 9:10)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, L.B., inzh.

Results of the modernization of the VK-100-2 turbine. Energ. i elektrotekh. prom. no.3:50-52 Jl-S '65. (MIRA 18:9)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, L.M., inzh.

Studying the cooling and dehumidification of air in spray chambers. (MIRA 14:4)
Sbor. trud NIIST no. 6:107-145 '60.
(Air conditioning)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

Yurganov, V. V., and Zusmanovich, M. V. INFLUENCE OF HIGH TEMPERATURE ON PROSYANAYA KAOLIN. Trans. Ceram Research Inst. (U.S.S.R.) 21,28-55(1929)(in German 56-57)--At a burning temperature of 880° reagents cause no changes in kaolin differing from those caused in similar materials. At this temperature kaolinic acid anhydride (metakaolin) apparently exists. At 980° kaolinite decomposes into free SiO_2 and the difficultly soluble form of clay and shows the first sign of formation of one or more Al silicates. At 1050° to 1100° there is little change except further combination of free SiO_2 and Al_2O_3. No sillimanite was found. At 1200° the difficultly soluble residue increases; it has the composition of $5Al_2O_3$ $4SiO_2$. At 1320° the ratio is $Al_2O_3:SiO_2$ = 2.70:2, or $4Al_2O_3$ $3SiO_2$. Kaolin burned at 1400° shows some crystals when examined in thin layers, increasing at 1470°. At 1400° and above $Al_2O_3:SiO_2$ = 3:2 (approximate).

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BOYKO, V.I., inzh; ZUSMANOVICH, L.B., inzh; SIZIN, P.R., inzh

Setup for cleaning turbine condensers by means of rubber balls.
Elek.sta. 29 no.9:20-24 S '58. (MIRA 11:11)
(Condensers(Steam) --Maintenance and repair)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, L.M., inzh.

Method of comparing and making calculations for one- and two-stage nozzle air coolers. Vod. i san. tekh. no.12:8-14 D '61. (MIRA 15:6)

(Air conditioning)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSHMANOVSKAYA, L.L.; LITVINOVA, L.M.

Manufacture of machine parts from polyamides. Sbor. nauch. trud. EMII 2:251-252 '62. (MIRA 16:8)

(Polyamides)
(Electric locomotives—Equipment and supplies)

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S/081/62/000/007/014/033
B156/B101

AUTHOR: Zusmanovich, L. M.

TITLE: Assessment of the contact surface between air and water in spray coolers

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 7, 1962, 341-342, abstract 7I85 (Vodosnab. i san. tekhn., no. 7, 1961, 2-7)

TEXT: The results of experimental research on coolers are analyzed; it is shown that the value of αl, which is the product of the surface area of the droplets formed when 1 kg of water is atomized and the coefficient of heat transfer relating to that surface, does not depend on the water pressure in the 1-2.5 atm range. A relationship is given between αl and the spraying factor, for values of the latter between 0.8 and 2.5. This relationship can be used for calculating cooling chambers with a design similar to the designs investigated but with different cross-sectional areas. [Abstracter's note: Complete translation.]

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ZUSMANOVICH, Mark Abramovich [Zusmanovych, M.A.]; LEVIN, Genrikh Yefimovich [Levin, H.IE.]; SIZIN, Petr Romanovich [Syzin, P.R.]; KOVAL'CHUK, O., red.; GORKAVENKO, L. [Horkavenko, L.], tekhn.red.

[From the experience in the operation of the Mironovka State Regional Electric Power Plant] Z dosvidu ekspluatatsii Mironivs'koi DRES. Kyiv, Derzh.vyd-vo tekhn.lit-ry URSR, 1960. 50 p. (MIRA 13:12)

(Ukraine--Electric power plants)

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

CN

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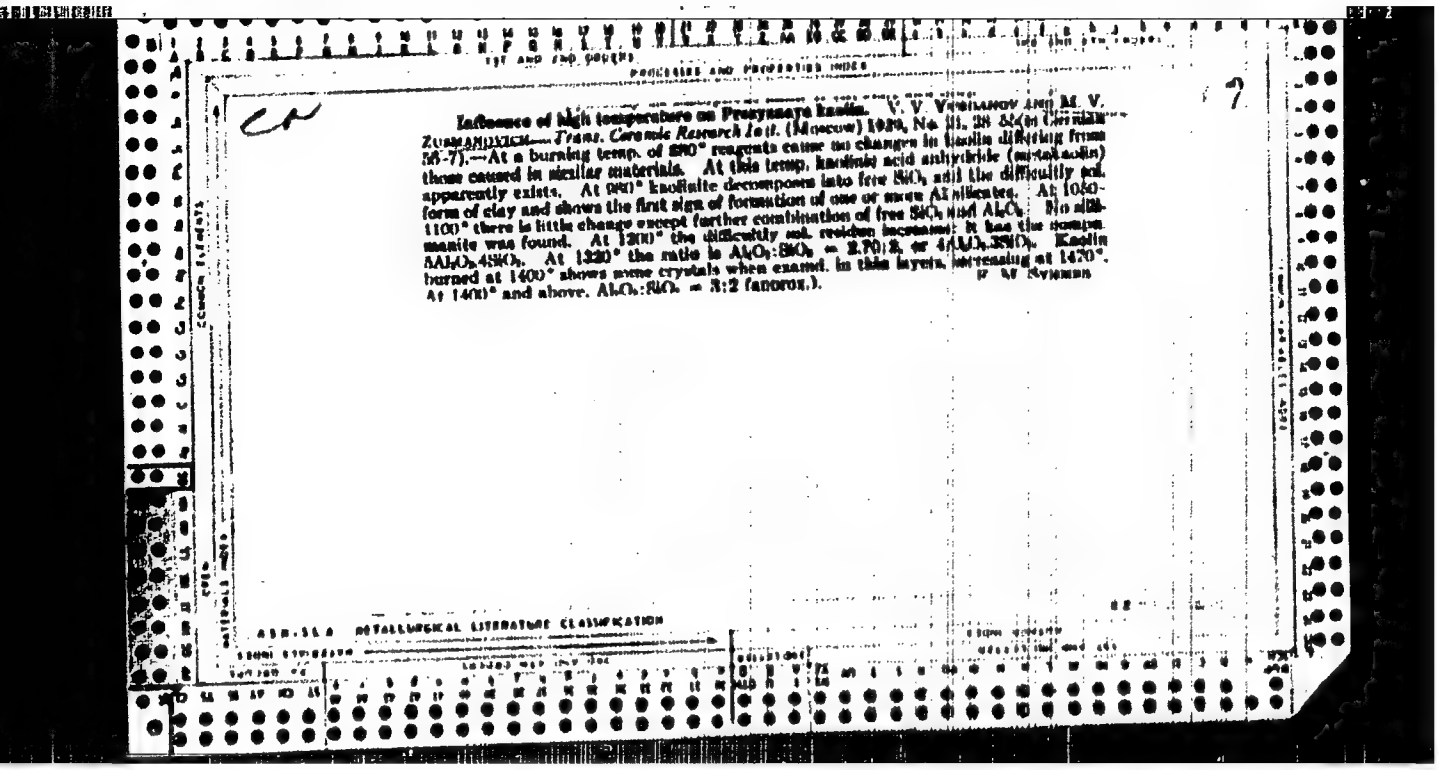

Influence of high temperature on Prosyanaya kaolin. V. V. Yushanov and M. V. Zusmanovich.—*Trans. Ceramic Research Inst.* (Moscow) 1939, No. 31, 28 [illegible] (in German 56-7).—At a burning temp. of 880° reagents cause no changes in kaolin differing from those caused in similar materials. At this temp. kaolinic acid anhydride (metakaolin) apparently exists. At 980° kaolinite decomposes into free SiO_2 and the difficultly sol. form of clay and shows the first sign of formation of one or more Al silicates. At 1050-1100° there is little change except further combination of free SiO_2 and Al_2O_3. No sillimanite was found. At 1200° the difficultly sol. residue increases; it has the compn. $5Al_2O_3.4SiO_2$. At 1320° the ratio is $Al_2O_3:SiO_2$ = 2.70:2, or $4Al_2O_3.3SiO_2$. Kaolin burned at 1400° shows some crystals when examd. in thin layers, increasing at 1470°. At 1400° and above, $Al_2O_3:SiO_2$ = 3:2 (approx.). R. M. Syrkin

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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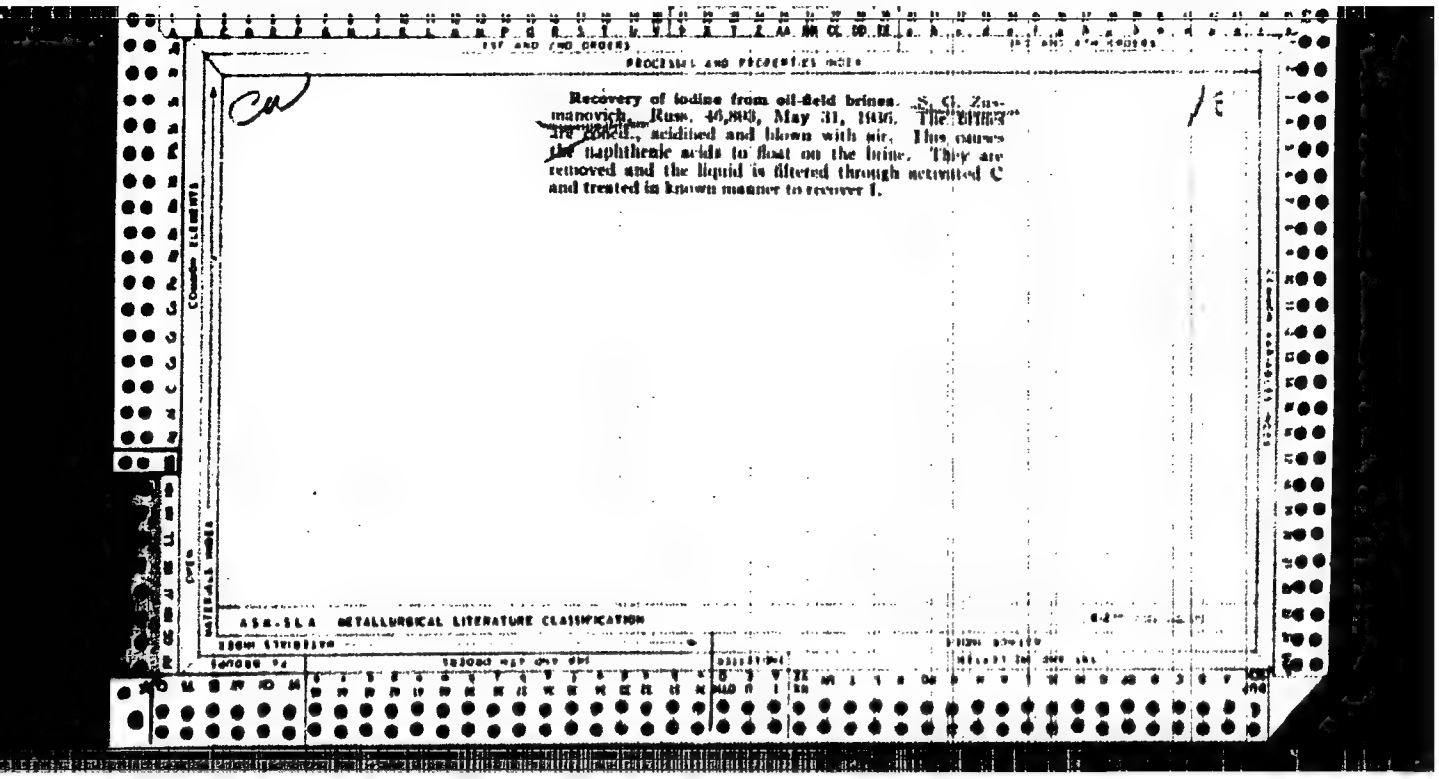

Recovery of iodine from oil-field brines. S. G. Zumanovich. Russ. 46,803, May 31, 1936. The brine is concd., acidified and blown with air. This causes the naphthenic acids to float on the brine. They are removed and the liquid is filtered through activated C and treated in known manner to recover I.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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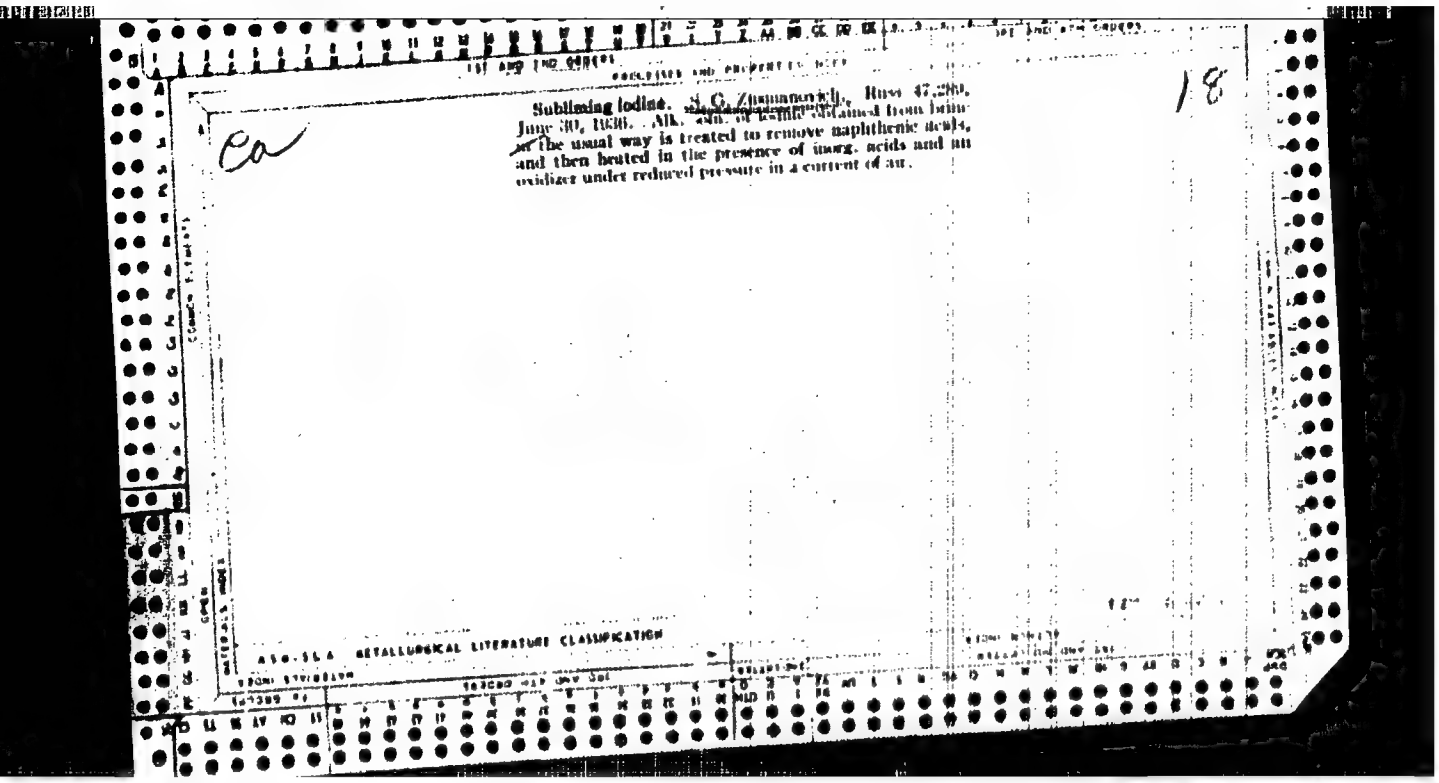

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

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Ca

Subliming iodine. S. G. Zhumanovich. Russ 47,289, June 30, 1936. Alk. soln. of iodine obtained from brine in the usual way is treated to remove naphthenic acids, and then heated in the presence of inorg. acids and an oxidizer under reduced pressure in a current of air.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

GOLOVANOVA, E.N., kand.biolog.nauk; ZUSMANOVICH, T.G.; GAVRILOV, E.I.

Poisoned grain baits against sparrows. Zashch. rast. ot vred. i bol. 6 no.3:34-35 Mr '61. (MIRA 15:6)

1. Kazakhskiy institut zashchity rasteniy, Alma-Ata (for Gavrilov).
(Soviet Central Asia--Sparrows--Extermination)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

KATS, I.M.; ZUSMANOVICH, V.A. (Krivoy Rog)

Severe anaphylactic reaction caused by the prolonged use of penicillin and streptomycin. Vrach. delo no.8:132-133 Ag'63. (MIRA 16:9)

1. Terapevticheskoye otdeleniye meditsinskoy sanitarnoy chasti rudoupravleniya imeni XX partiynogo s"yezda, Krivoy Rog.

(ANAPHYLAXIS) (PENICILLIN—TOXICOLOGY)
(STREPTOMYCIN—TOXICOLOGY)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, V.M.

Experiments based on the "new theory of color." Tekh.kino i telev. 4 no.6:57-59 Je '60. (MIRA 13:7)
(Color sense) (Color television)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

GUBINA, A.A.; ZAKGEYM, Ye.N.; ZUSMANOVICH, V.M.; IVANOV, K.N.; LISITSYN, S.N.; MOZGOV, A.Ya.; PAVLOV, A.S.; PISKORSKIY, B.N.[deceased]; USHOMIRSKAYA, A.I.; FINKEL'SHTEYN, S.M.; CHISTOVSKIY, V.B.; SHER, S.Yu.; ADAMOV, O.V., nauchn. red.; BEYZERMAN, A.N., nauchn. red.; ZHIVOV, M.S., nauchn. red.; POGORELYY, P.P., nauchn. red.; STAROVEROV, I.G., nauchn. red.; STESHENKO, A.L., nauchn. red.; TSEYTLIN, M.M., nauchn. red.; KOKHANENKO, N.A., inzh., red.; VOINYANSKIY, A.K., glav. red.

[Assembling interior sanitary equipment] Montazh vnutrennikh sanitarno-tekhnicheskikh ustroistv. Moskva, Stroiizdat, 1964. 725 p. (MIRA 17:8)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, V.M., inzh.

Analysis of the operation of radiators of air inlet chambers and their control. Vod.i san.tekh. no.4:18-23 Ap '65. (MIRA 19:1)

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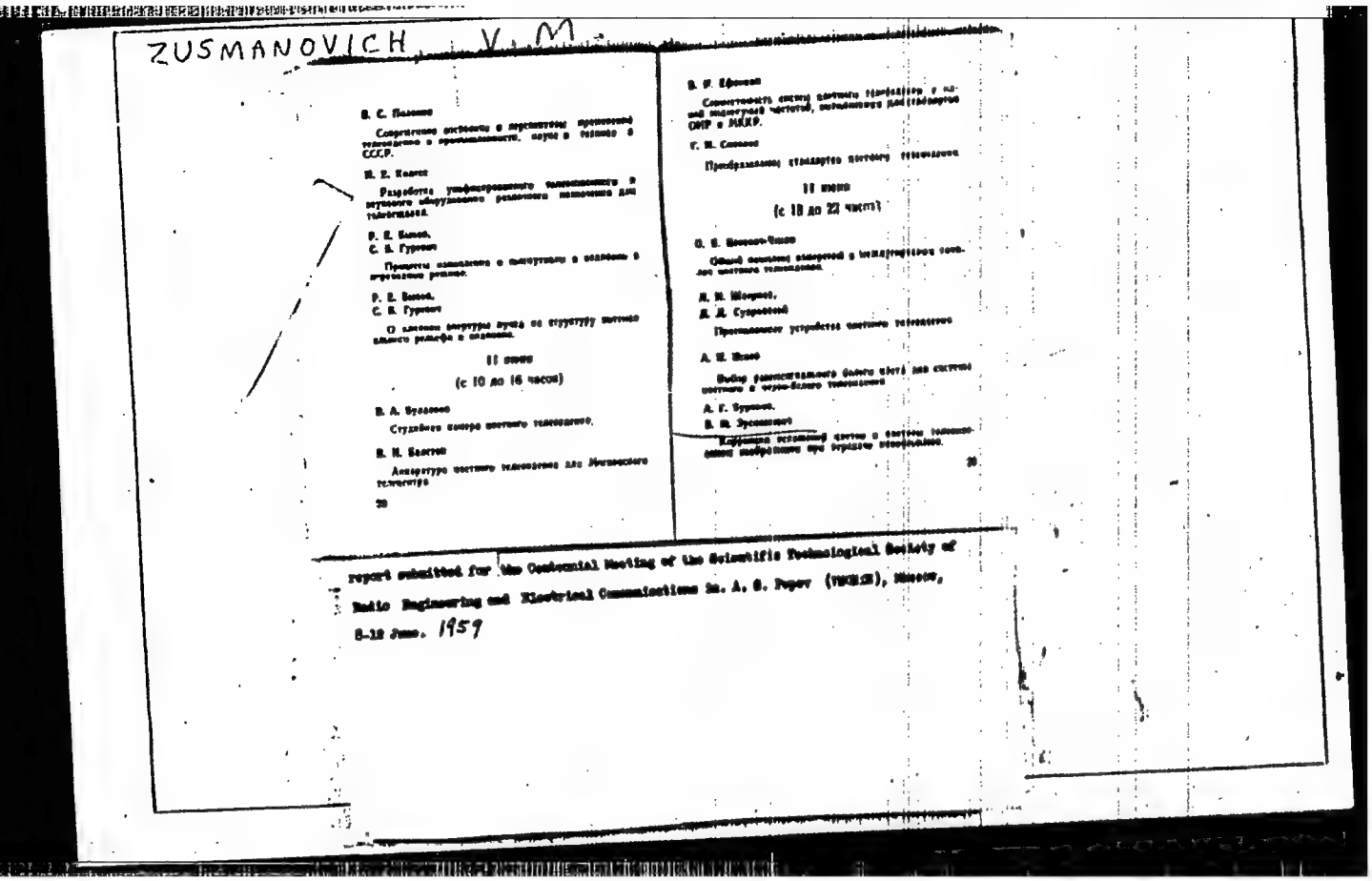

ZUSMANOVICH, V. M.

В. С. Полонин

Современное состояние и перспективы промышленной телевидения в промышленности, науке и технике в СССР.

Н. Е. Кокоев

Разработка унифицированного телевизионного и звукового оборудования различного назначения для телевидения.

Р. Е. Быков,
С. В. Гуревич

Принципы накопления и выгрузки в подвижных и переходных режимах.

Р. Е. Быков,
С. В. Гуревич

О влиянии анкетуры пучка на структуру цветного яркого рельефа в подвижных.

11 июня

(с 10 до 16 часов)

В. А. Булавин

Студийная камера цветного телевидения.

В. Н. Балстон

Аппаратура цветного телевидения для Московского телецентра

20

В. Ф. Ефимов

Совместимость систем цветного телевидения с одной индикаторной частотой, выполненных для стандартов ОИР и НТСР.

Г. М. Сивенко

Преобразование стандартов цветного телевидения.

11 июня

(с 18 до 22 часов)

О. Б. Цевелев-Чикин

Общий комплекс камерной и междугородных каналов цветного телевидения.

Л. М. Шаврин,
Д. Д. Суворовский

Проекционное устройство цветного телевидения

А. Н. Ивлев

Выбор равносигнального белого цвета для системы цветного и черно-белого телевидения

А. Г. Буренин,
В. М. Зусманович

Коррекция искажений цветов в системе телевизионных изображений при передаче неподвижных.

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report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, V. M. (Engineer)

"Problems of Analytic Comparison of Price and Economic Development of Single-Pipe Systems for Central Heating." Cand Tech Sci, Inst of Organic Chemistry imeni N. D. Zelinskiy, Acad Sci USSR, 28 Dec 54. (VM, 17 Dec 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)

SO: SUM No. 556, 24 Jun 55

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, V.M.

Single-pipe hot-water heating system. Vop.otopl. i vent. no.3:34-48 '56. (MLRA 10:3)

(Hot water heating) (Heating pipes)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

GOLIGORSKIY, S.D.; ZUSMANOVICH, F.N.

Synthomycin in the treatment of urological diseases. Sov.med. 21 Supplement:25 '57. (MIRA 11:2)

1. Iz gospital'noy khirurgicheskoy kliniki Kishenevskogo meditsinskogo instituta.
(CHLOROMYCETIN) (URINARY ORGANS--DISEASES)

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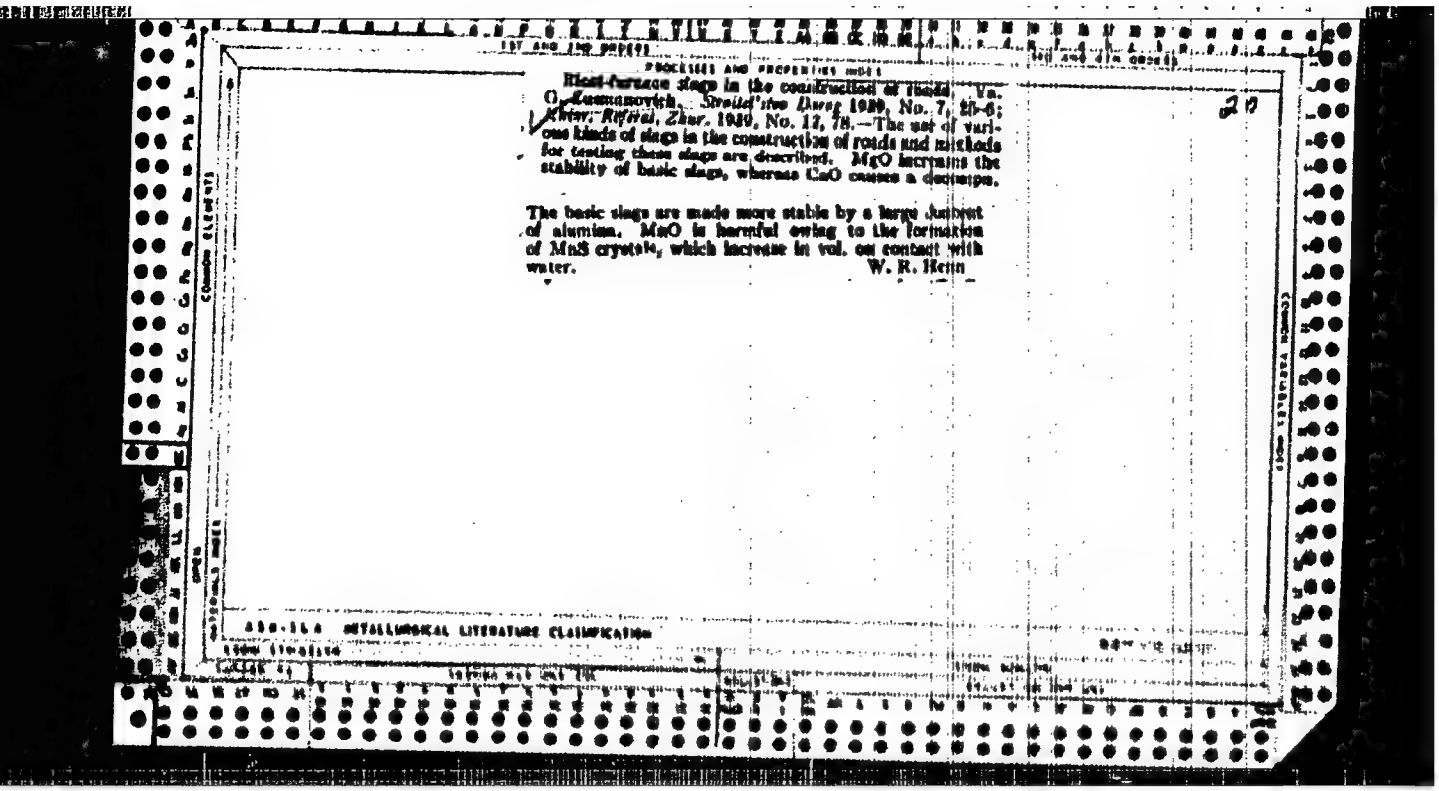

PROCESSES AND PROPERTIES INDEX

Blast-furnace slags in the construction of roads. Va. O. Luzmanovich. *Stroitel'stvo Dorog* 1939, No. 7, 25-6; *Khim. Referat. Zhur.* 1939, No. 12, 78.—The use of various kinds of slags in the construction of roads and methods for testing these slags are described. MgO increases the stability of basic slags, whereas CaO causes a decrease.

The basic slags are made more stable by a large content of alumina. MnO is harmful owing to the formation of MnS crystals, which increase in vol. on contact with water.

W. R. Henn

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METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

BRUNOVA, R.Ya.; BURYAKOV, A.G.; ZUSMANOVICH, V.M.

Reproduction of semitones in the black-and-white television image. Tekh. kino i telev. no. 8:9-18 Ag '58. (MIRA 11:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut televideniya.
(Television--Transmitters and transmission)

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ZUSMANOVICH, V.M., inzh.

Standard inflow ventilation chambers. Vod. i san. tekh. no.1: 31-34 Ja '64 (MIRA 18:2)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, Vera Mikhaylovna; GOS, M.E., red.

[Light and color in television] Svet i tsvet v televidenii. Moskva, Izd-vo "Energiia," 1964. 204 p.
(MIRA 17:6)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, Ya.T., inzh.

Several problems in designing general plans for machinery plants.
Prom. stroi. 41 no.10:41-43 O '63. (MIRA 16:11)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, A. T.

General plans for industrial plants Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 301 p. (54-32082)

TH4511.Z87

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, Ya.T., inzhener; ZOLOTUKHIN, G.I., dotsent; KELLINGER, A.N., inzhener, redaktor.

[General plans for industrial plants] Generalnye plany promyshlennykh ploshchadok. Moskva, Gos. izd-vo lit-ry po stroitel'stvu i arkhitekture, 1953. 301 p. (MLRA 7:7)
(Factories--Design and construction)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVICH, Ya.T., inzh.

Indices of the design of general plans for machinery manufacturing plants. Prom. stroi. 41 no.5:13-15 My '64. (MIRA 18:11)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

KUROCHKA, A.L., inzh.; ZUSMANOVSKAYA, L.L., inzh.

Using new materials in electric locomotive construction. Zhel.dor. transp. 40 no.10:60-62 O '58. (MIRA 11:12)
(Electric locomotives--Construction)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

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ALIKIN, R.I.; GORDIYENKO, P.I.; BESPROZVANNYY, I.G.; ZHIBTSOV, P.P.; ZOLOTAREV, P.A.; ZUSHANOVSKAYA, L.L.; IBRAGIMOV, K.G.; KOZOREZOV, M.A.; KOKOREV, A.T.; KUPRIANOV, Yu.V.; KUROCHKA, A.L., kand. tekhn. nauk; LITVINOVA, L.M.; LOZANOVSKIY, A.L., kand. tekhn. nauk; MAVDRIKOV, F.I.; MAKHAN'KOV, L.V.; PUKALOV, V.I.; RAYLYAN, A.F.; SVERDLOV, V.Ya.; SKLYAROV, B.S.; SOLOV'YEV, K.M., kand. tekhn. nauk; STUKALKIN, A.N.; SUROVIKOV, A.A.; TIKHONOV, N.G.; SHTEPENKO, P.K.; YANOV, V.P.

[VL80 electric locomotive.] Electrovoz VL80. Novocherkassk. Nauchno-issledovatel'skii institut elektrovozostroeniia. Sbornik nauchnykh trudov, vol. 5) (MIRA 18:5)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVSKIY, M. K.

KARATYGIN, A.M., kandidat tekhnicheskikh nauk, dotsent; KORSHUNOV, B.S., kandidat tekhnicheskikh nauk; MUMIN, Yu.L., inzhener, retsenzent; ZUSMANOVSKIY, M.K., inzhener, retsenzent; ZATULOVSKIY, D.I., kandidat tekhnicheskikh nauk, redaktor.

[Sharpening and lapping cutting tools] Zatochka i dovodka rezhushchego instrumenta. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi i sudostroitel'noi literatury, 1954. 206 p.(MLRA 7:7)
(Cutting tools)

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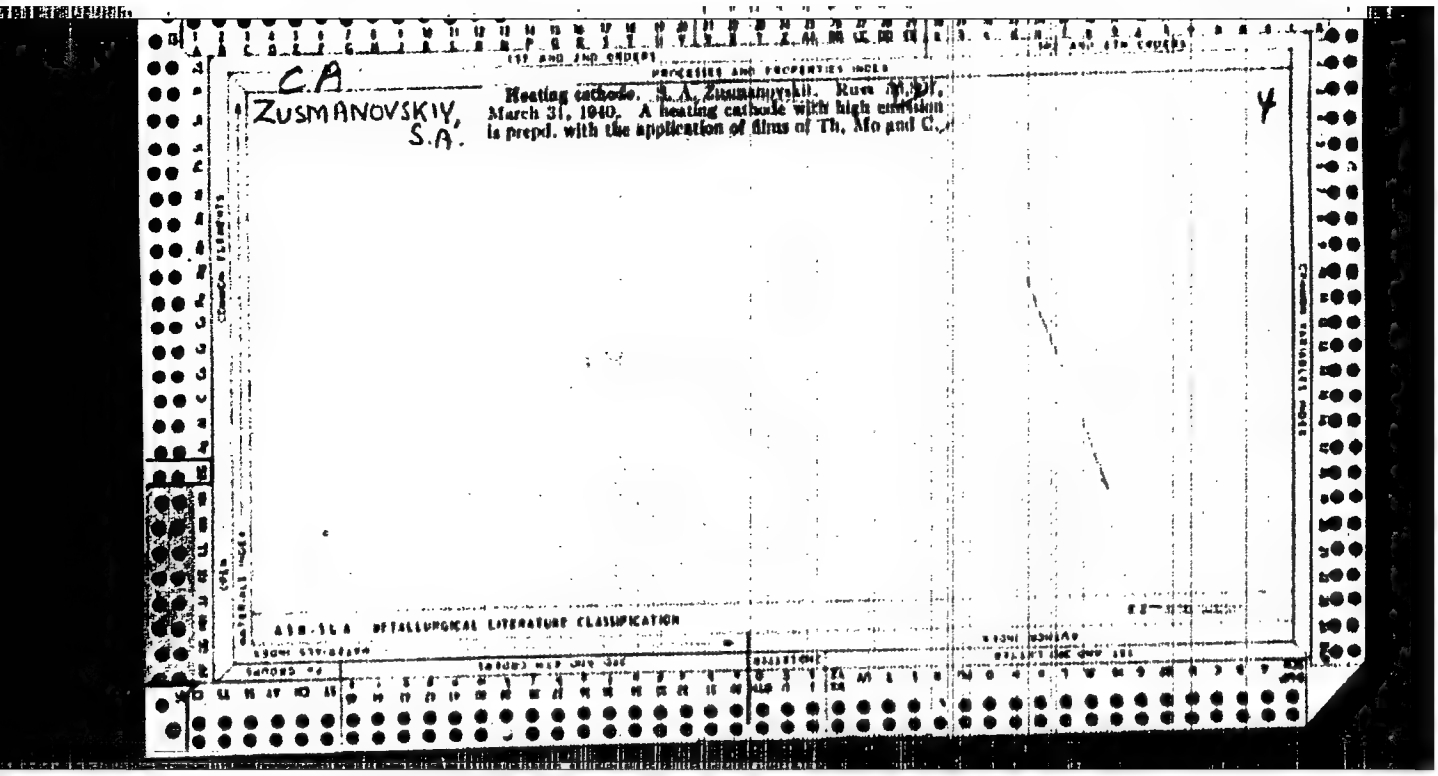

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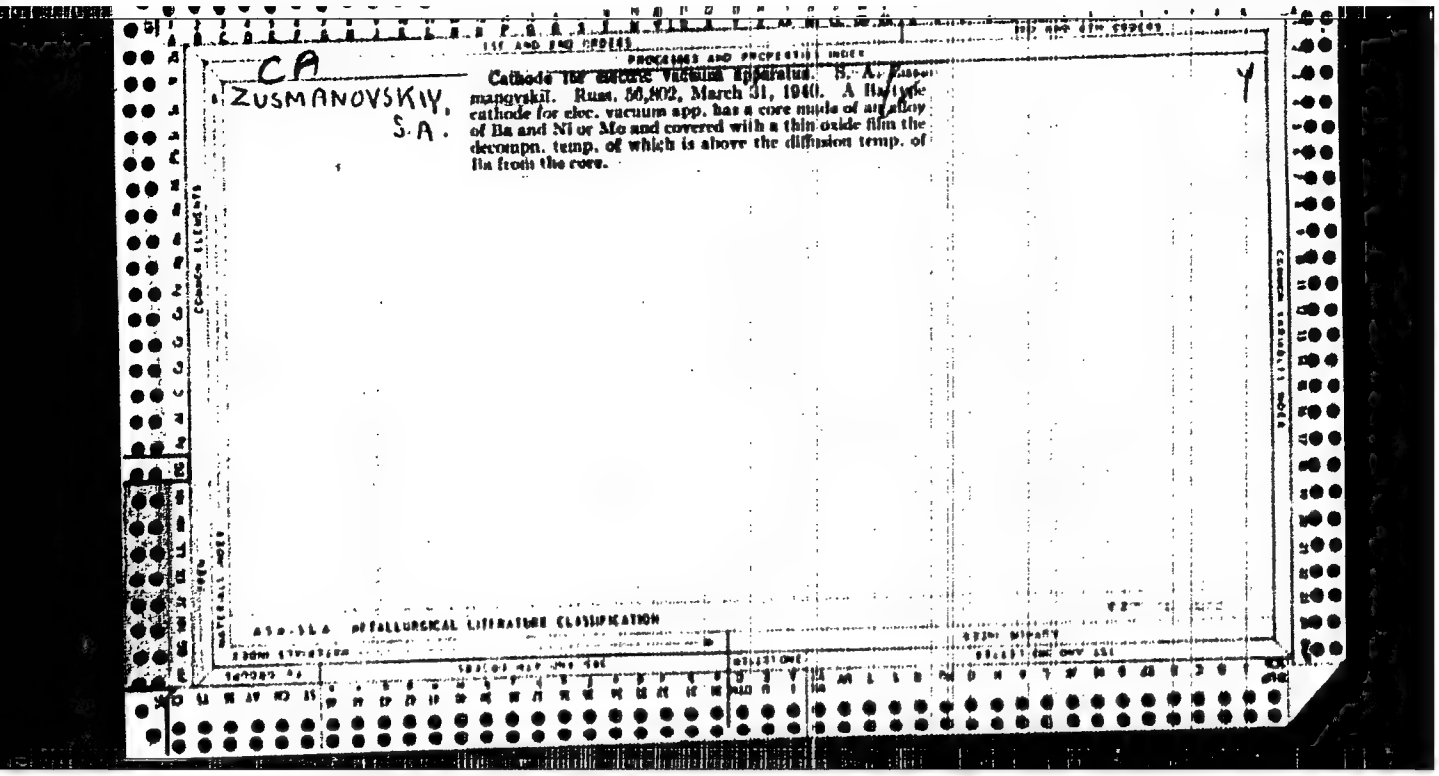

CA

ZUSMANOVSKIY, S.A.

Cathode for electric vacuum apparatus. S. A. Zusmanovskiĭ. Russ. 56,402, March 31, 1940. A Ba-type cathode for elec. vacuum app. has a core made of an alloy of Ba and Ni or Mo and covered with a thin oxide film the decompn. temp. of which is above the diffusion temp. of Ba from the core.

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ZUSMANOVSKAYA, L.L.; PUKALOV, V.I.

Investigating the characteristics of the EPK class thermosetting lacquer with "F" heat resistance. Sbor. nauch. trud. EINII 2:229-236 '62. (MIRA 16:8)

(Electric insulators and insulation)
(Lacquer and lacquering)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ANISIMOVA, Ye.K., inzh.; ZUSMANOVSKAYA, L.L., inzh.; KALITVYANSKIY, kand. tekhn.nauk

Heat resistant insulation of the traction motor of a mainline electric locomotive. Vest. elektroprom. 32 no.1:14-18 Ja '61. (MIRA 14:3)
(Electric railway motors) (Electric insulators and insulation)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

BONDAREV, P.G.; ZUSMANOVSKAYA, L.L.; KUT'KOV, A.A.; LITVINOVA, L.M.; PYATNITSKIY, A.A.

Mechanical properties of capron at low temperatures. Plast. massy no.12:43-45 '60. (MIRA 13:12)
(Nylon--Testing) (Polyamides)

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

KUROCHKA, Aleksandr Leont'yevich; ZUSMANOVSKAYA, Lyubov' L'vovna; SIDOROV, N.I., inzh., red.; USENKO, L.A., tekhn. red.

[New insulation for traction motors] Novaia izoliatsiia tiagovykh dvigatelei. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 94 p. (MIRA 14:7)
(Electric railway motors) (Electric insulators and insulation)

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002065620013-6

ZUSMANOVSKAYA, L. L.

PHASE I BOOK EXPLOITATION SOV/3990

Kurochka, Aleksandr Leont'yevich, Aleksandr Leont'yevich Lozanovskiy, and Lyubov' L'vovna Zusmanovskaya.

Ispytaniya tyagovykh mashin i apparatov elektricheskikh lokomotivov i teplovozov. (Testing of Traction Machinery and Apparatus of Electric and Diesel Locomotives) Moscow, Transzheldorizdat, 1959. 215 p. 5,000 copies printed.

Ed.: L.S. Sokolov, Engineer; Tech. Ed.: G.P. Verina.

PURPOSE: This monograph is intended for technical personnel engaged in the production, operation, and maintenance of electric traction equipment, and for students of transportation schools of higher education.

COVERAGE: The book describes methods used in testing electric machines and apparatus of electric locomotives, electric train sections, and diesel locomotives in all stages of manufacture and repair. In addition, the book discusses equipment design and electric circuit diagrams of test stations. The authors thank Candidate of Technical Sciences N.N. Sidorov and Engineer B.G. Kuznetsov. There are 30 references, all Soviet.

Card 1/ 5

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4. Technical features of conductor materials and their tests 17
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[Testing traction machines and apparatus of electric and diesel locomotives] Ispytaniia tiagovykh mashin i apparatov elektricheskikh lokomotivov i teplovozov. Moskva, Gos.transp.zhel-dor. izd-vo, 1959. 215 p. (MIRA 13:1)
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15-8500

AUTHORS: Bondarev, P. G., Zusmanovskaya, L. L., Kut'kov, A. A., Litvinova, L. M., Pyatnitskiy, A. A.

TITLE: Mechanical Properties of Caprone at Low Temperatures

PERIODICAL: Plasticheskiye massy, 1960, No. 12, pp. 43 - 45

TEXT: To study the effect of low temperatures on the mechanical properties of polyamides, the authors made a number of mechanical tests on samples cooled down to -60°C. Samples from "β" ("B") caprone resin were tested which had been cast in an autoclave, in a hand-operated injection press, and in a press with hydraulic drive, since the type of casting device applied is known to have a certain influence on the mechanical properties of products. Besides, different casting methods and heat treatments were used. In the low-temperature tests, five stages were distinguished: 1) Temperature-change stability test according to ГОСТ 928-56 (GOST 928-56), 2) test of samples cooled down to -50°C, 3) investigation of the reversibility of original mechanical properties of samples which had been briefly cooled and then brought to normal

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Mechanical Properties of Caprone at Low Temperatures

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temperature, 4) determination of mechanical properties of samples which had been subjected to several cycles of temperature change in the range of from + 20 to -60°C, and 5) determination of mechanical properties of samples kept at -60°C for 100 hours. The tests for tension, compression, static bending, and impact strength were made according to GOST 4649-55, 4651-49, 4648-56, and 4647-55 (for normal temperatures). The limits of tensile, compressive and static flexural strength were determined on a 50-t tearing machine "Amsler". Impact strength was tested by means of a pendulum hammer (GOST 4647-55). The samples were cooled in an MTC-500 (MPS-500) device of the firm "Nema". All caprone samples stood the temperature-change test according to GOST 928-56. The tearing strength increased slightly at low temperatures (up to -60°C) with falling temperature, the specific impact strength dropped appreciably, the limit of compressive strength increased slightly, and the limit of static flexural strength dropped considerably. The mechanical properties of caprone regenerated at normal temperature, irrespective of the fact whether it had been kept at low temperatures for a short or a long period, once or repeatedly. In the impact test, uncooled samples do not break but bend and crack between two supports (Fig.1); "frozen" samples

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Mechanical Properties of Caprone at Low Temperatures

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are distinguished by high brittleness (Fig.2), and samples which had been cooled and then brought back to normal temperautre behave like uncooled samples (Fig.3). Maximum tearing strength at low temperatures is observed in samples which had been previously treated with paraffin in a vapor bath, maximum impact strength in samples which had not been treated with water or vapor. There are 3 figures, 1 table, and 4 references: 3 Soviet and 1 German.

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